

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. - 9. (canceled).

10. (currently amended): An aspheric-surface processing method using a cutting apparatus comprising at least one turning tool movable in the same direction as a rotating axis of a work and in a direction perpendicular to the rotating axis of the work, the method comprising:

moving the turning tool at a predetermined feed pitch in a fixed direction over at least a part of a region of the work extending from a peripheral portion of the work to a center of the rotating axis of the work; and

moving the turning tool in another direction perpendicular to the rotating axis of the work in order to process the work for forming an axis-asymmetric aspheric surface,

wherein, while forming the axis-asymmetric aspheric surface, the turning tool moves in the fixed direction without performing a reciprocating motion in an opposite direction.

11. (original): The aspheric-surface processing method according to claim 10, further comprising moving the turning tool at a different predetermined feed pitch in the fixed direction over another part of a region of the work.

12. (original): The aspheric-surface processing method according to claim 11, further comprising moving the turning tool at a lower predetermined feed pitch in the fixed direction over a peripheral region of the work.

13. (new): The aspheric-surface processing method according to claim 10, wherein, with respect to a direction parallel to the rotating axis of the work, the turning tool only moves in one fixed direction from the peripheral portion of the work to the center of the rotating axis of the work.

14. (new): The aspheric-surface processing method according to claim 10, wherein the turning tool cuts the work in a helical path in a non-zigzag manner on X-axis.

15. (new): The aspheric-surface processing method according to claim 10, wherein the fixed direction is on X-axis.

16. (new): The aspheric-surface processing method according to claim 10, wherein the work is rotated in a range of 100 to 3,000 rpm for roughing and finishing operations, wherein the predetermined feed pitch is in a range of 0.005 to 1.0 mm/rev. for the roughing operation and in a range of 0.005 to 0.2 mm/rev. for the finishing operation, and wherein an amount of incision is in a range of 0.1 to 10.00 mm/pass for the roughing operation and 0.05 to 3.0 mm/pass for the finishing operation.

AMENDMENT UNDER 37 C.F.R. § 1.111

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17. (new): The aspheric-surface processing method according to claim 16, wherein when performing both the roughing and finishing operations, the turning tool moves in the fixed direction on X-axis without performing reciprocating motions.